

THE BARNACLE AND DECAPOD FAUNA FROM THE NEARSHORE AREA OF PANAMA CITY, FLORIDA¹

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INTRODUCTION

A survey of the nearshore benthonic fauna off Panama City, Florida, was begun during the summer of 1957 and continued for two years. The program was a segment of a hydrobiological survey of the St. Andrews Bay area aided by a contract between the Office of Naval Research, Department of the Navy, and Florida State University, NR 163-396.

SURVEY AREA

The survey area is located between a line SSE from Long Beach and a line NE from Port St. Joe. The depth of collection ranged from 30 to 100 feet. The results of the survey are based primarily on qualitative information obtained by dredging operations.

The hydrography of the area off Panama City is particularly interesting in that it approaches a normal marine environment especially regarding salinity and transparency. Tolbert and Austin (1959) provide data for the area covering a three year period, April 1955 to April 1958. The surface seasonal temperature range for the period was 56°F to 85°F. The maximum salinity range for the same period was between 33 and 36 o/oo with salinities usually between 34 and 35 o/oo. Vertical visibility ranged from 18 to 48 feet. The currents of the area, at a depth of 60 feet, are predominately longshore (NE to SW) with average velocities ranging from about 0.1 to 0.5 knots. The relative stability of the environment can be attributed to the absence of large rivers emptying into the area. The primary source of dilution is St. Andrews Bay and drainage from the Bay apparently has only a local effect. The sediments of the region surveyed consist of angular to subrounded and well-sorted quartz sand.

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METHODS

In 1957 sampling was conducted along a transect perpendicular to the shore, near Long Beach, to a depth of about 100 feet. Methods of sampling included dredging, trawling and aqua-lung diving. Dredge and trawl hauls at regular intervals along the transect revealed a paucity of living macro-benthonic species.

During the summer of 1958, through the cooperation of Mr. J. D. Holmes of Holmes Fishing Co., several trips were made with commercial fishermen to survey the invertebrate fauna associated with a large scallop (*Aequipecten gibbus* (L)) bed off Panama City, Florida. The area was located between a line SSE from the old pass from St. Andrews Bay and the Port St. Joe Bouy. The depth range of the area fished was 60-90 feet. The bed was fished commercially from the 1 March, 1958, to about the middle of August, 1958. Dredges, measuring 4 feet by 6 feet capable of holding about 6 bushels, were used. Usually two dredges were towed simultaneously. The location of this bed and the potential scallop fishery on the west coast of Florida has been described by Bullis and Ingle (1958).

During the summer of 1959, the same area was re-surveyed in an attempt to obtain quantitative data on the invertebrate fauna. Numerous dredge hauls and aqua-lung dives were made in the area but there was a complete absence of live scallops. In fact very few specimens of any living invertebrates were recovered or observed.

A review of the previous decapod collections in the northeastern Gulf of Mexico has been given by Wass (1955). The known geographic range of several species collected during the 1957-59 survey has been extended considerably. For each species, only the nearest previous collection locality has been noted.

ANNOTATED LIST

SCALPELLIDAE

Scalpellum arietinum Pilsbry. Pilsbry (1907)—Off Cedar Keys, Fla.

LEPADIDAE

Lepas anatifera Linnaeus. Pilsbry (1907) and Henry (1954)—Gulf of Mexico.

Octolasmis mülleri (Coker). Pilsbry (1907), Pearse (1932a), Humes (1941) and Henry (1954)—Gulf of Mexico.

Octolasmis hoeki Stebbing. Henry (1954)—Gulf of Mexico.

BALANIDAE

- Balanus amphitrite niveus* Darwin. Henry (1954)—Gulf of Mexico.
Balanus calidus Pilsbry. Pilsbry (1916) and Henry (1954)—Gulf of Mexico.
Balanus galeatus Linnaeus. Pilsbry (1916) and Henry (1954)—Gulf of Mexico.
Chelonobia patula (Ranzani). Pilsbry (1916) and Henry (1954)—Gulf of Mexico.

PENAEIDAE

- Penaeus duorarum* Burkenroad. Wass (1955)—Alligator Harbor, Fla.
Sicyonia brevirostris Stimpson. Wass (1955)—Off Alligator Harbor, Fla.
Solenocera atlantidis Burkenroad. Springer and Bullis (1956)—Off Pensacola, Fla.
Trachypeneus constrictus (Stimpson). Wass (1955)—Off Alligator Harbor, Fla.

ALPHEIDAE

- Alpheus normanni* Kingsley. Wass (1955)—Alligator Harbor, Fla.
Alpheus togatus Armstrong. Armstrong (1940)—Only from Santo Domingo and Bermuda.
Synalpheus townsendi Coutiere. Wass (1955)—Alligator Harbor, Fla.

HIPPOLYTIDAE

- Latreutes parvulus* (Stimpson). Wass (1955)—Alligator Harbor, Fla.

PONTONIIDAE

- Periclimenes americanus* (Kingsley). Wass (1955)—Alligator Harbor, Fla.
Pontonia margarita Smith. Holthius (1951)—Off Panama City and Cape San Blas, Fla.

SCYLLARIDAE

- Scyllarides nodifer* (Stimpson). Springer and Bullis (1956)—Off Cedar Keys, Fla.

CALLIANASSIDAE

- Upogebia affinis* (Say). Wass (1955)—Alligator Harbor, Fla.

PORCELLANIDAE

- Porcellana sayana* (Leach). Wass (1955)—Alligator Harbor, Fla.

PAGURIDAE

- Calcinus tibicen* (Herbst). Provenzano (1959)—“Bermuda, West Indian region from south Florida to Brazil.”
Pagurus defensus (Benedict). Benedict (1892)—Gulf of Mexico.
Pagurus impressus (Benedict). Wass (1955)—Alligator Harbor, Fla.

Pagurus miamensis Provenzano. Provenzano (1959)—“Known at present only from Bahamas and Miami, Florida area.”

Pagurus stimpsoni (A. Milne-Edwards and Bouvier). Wass (1959)—Off Panama City, Fla.

Petrochirus diogenes (Linnaeus). Wass (1955)—Off Alligator Harbor, Fla.

Pylopagurus corallinus (Benedict). Springer and Bullis (1956)—Off Cedar Keys, Fla.

Spiropagurus dispar Stimpson. Wass (1959)—Eastern Gulf of Mexico.

DROMIIDAE

Dromidia antillensis Stimpson. Rathbun (1937)—Cape San Blas, Fla.

Hypoconcha arcuata Stimpson. Wass (1955)—Alligator Harbor, Fla.

Hypoconcha sabulosa (Herbst). Rathbun (1937)—South of St. George Island, Fla.

DORIPPIDAE

Ethusa mascarone americana A. Milne-Edwards. Rathbun (1937)—Off Cape San Blas, Fla.

LEUCOSIIDAE

Ebalia cariosa (Stimpson). Rathbun (1937)—Off Tampa, Fla.

Ebalia stimpsoni A. Milne-Edwards. Rathbun (1937)—Only from Tortugas, Fla.

Persephona punctata aquilonaris Rathbun. Rathbun (1937)—Pensacola, Fla.

CALAPPIDAE

Calappa flammea (Herbst). Rathbun (1937)—Off Pensacola, Fla.

Hepatus epheliticus (Linnaeus). Wass (1955)—Alligator Harbor, Fla.

Osachila semilevis Rathbun. Rathbun (1937)—Off Cape San Blas, Fla.

PORTUNIDAE

Arenaeus cribrarius (Lamarck). Wass (1955)—Off Alligator Harbor, Fla.

Callinectes sapidus Rathbun. Rathbun (1930)—St. Vincent Sound, Fla.

Ovalipes ocellatus guadulpsensis (Saussure). Rathbun (1930)—Off Pensacola, Fla.

Portunus depressifrons Stimpson. Wass (1955)—Off Alligator Harbor, Fla.

Portunus spinicarpus (Stimpson). Rathbun (1930)—Off Cape San Blas, Fla.

XANTHIDAE

Lobopilumnus agassizi (Stimpson). Rathbun (1930)—Off Cape San Blas, Fla.

Micropanope pusilla A. Milne-Edwards. Rathbun (1930)—Off Cape San Blas, Fla.

- Micropanope xanthiformis* A. Milne-Edwards. Rathbun (1930)—Tortugas, Fla.
Pilumnus sayi Rathbun. Rathbun (1930)—Off Carrabelle and Pensacola, Fla.

PINNOTHERIDAE

- Dissodactylus crinitichelis* Moreira. This form which occurs on the sand dollar *Encope micheline* has been reported from Alligator Harbor by Wass (1955).
Pinnotheres maculatus Say. Wass (1955) reported *P. maculatus* from several clams in the Alligator Harbor region. It was very common in *Aequipecten gibbus*.

MAJIDAE

- Batrachonotus fragosus* Stimpson. Rathbun (1925)—Off Cape San Blas, Fla.
Hemus cristulipes A. Milne-Edwards. Rathbun (1925)—Off Cape San Blas, Fla.
Inachoides laevis Stimpson. Wass (1955)—Off Alligator Harbor, Fla.
Libinia emarginata Leach. Rathbun (1925)—Off Carrabelle, Fla.
Metoparhaphis calcarata (Say). Wass (1955)—Off Alligator Harbor, Fla.
Mithrax pleuracanthus Stimpson. Rathbun (1925)—Off Carrabelle, Fla.
Podochela sidneyi Rathbun. Rathbun (1925)—Off Apalachicola, Fla.
Stenocionops furcata coelata (A. Milne-Edwards). Rathbun (1925)—Off Cape San Blas, Fla.
Stenorhynchus seticornis (Herbst). Rathbun (1925)—Off Cape San Blas, Fla.

PARTHENOPIDAE

- Heterocrypta granulata* (Gibbes). Wass (1955)—Alligator Harbor, Fla.
Parthenope serrata (A. Milne-Edwards). Rathbun (1925)—Off Cape San Blas, Fla.

DISCUSSION

A total of 53 species and subspecies of decapods have been reported from the nearshore area off Panama City, Florida. The recovery of species during each collecting period was 12 species in 1957, 36 in 1958, and 5 in 1959. The following species were collected only in 1957: *Arenaeus cribrarius*, *Calcinus tibicen*, *Mithrax pleuracanthus* and *Portunus depressifrons*. The remaining species collected in 1957, which included *Alpheus normanni*, *Callinectes sapidus*, *Ovalipes ocellatus guadulpensis*, *Penaeus duorarum*, *Petrochirus diogenes*, *Podochela sidneyi*, *Portunus spinicarpus* and *Sicyonia brevirostris* were also collected in 1958 and 1959. The

species collected only in 1959 were *Hemus cristulipes*, *Metoparhaphis calcarata*, *Periclimenes americanus*, *Spiropagurus dispar*, *Synalpheus townsendi* and *Upogebia affinis*.

The few species of decapods collected in 1957 and 1959 is in line with the paucity of other living macrobenthonic invertebrates. The greatest number of species of decapods and other invertebrates as well as individuals was encountered in 1958 when the live scallops, *Aequipecten gibbus*, were in abundance. Live scallops were not found in 1957 nor in 1959. The relationship between the decapods and other invertebrates and the scallops is obscure. It appears that the scallops, decapods and other invertebrates represent a rather well defined community. Bullis and Ingle (1958) suggested a shift in population center of the scallops. Migration of the bay scallop, *Aequipecten irradians concentricus* (Say), has been verified by Sastry (1959). So it appears that when the scallops migrate, the other elements of the community follow.

The known northern range of 8 species has been extended considerably. Included in the group are *Alpheus togatus*, *Calcinus tibicen*, *Pagurus miamensis*, *Ebalia stimpsoni* and *Micropanope xanthiformis*. The northernmost range of the aforementioned species except *A. togatus* was reported as either Tortugas or the Miami region. *A. togatus* was previously reported from Santo Domingo and Bermuda by Armstrong (1940). The known range of *Ebalia cariosa* has been extended from Tampa while that of *Scyllarides nodifer* and *Pylopagurus corallinus* has been extended from Cedar Keys.

Three new species (personal communications from Dr. Chase and Dr. Wass) were collected. They are representatives of the genera *Munida*, *Pinnaxodes* and *Pylopagurus*. The most unexpected was a species of *Munida*, typically a deep water genus.

A total of eight species of barnacles were collected from the survey area. *Octolasmis hoeki* occurred in great abundance on the sub-branchial region of *Calappa flammea*. This is the only decapod on which *O. hoeki* was found.

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